UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,728	03/13/2001	Kannan Srinivasan	696.005	2029

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EXAMINER
RETTA, YEHDEGA

ART UNIT	PAPER NUMBER
3622	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	09/804,728	SRINIVASAN ET AL.
	Examiner	Art Unit	
	Yehdega Retta	3622	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>06 September 2007</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-19</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-19</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

This office action is in response Request for Continued Examination·filed September 6,

2007. Applicant added claim 14-19. Claims 1-19 are pending.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-19 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with

the written description requirement. The claim(s) contains subject matter which was not

described in the specification in such a way as to reasonably convey to one skilled in the relevant

art that the inventor(s), at the time the application was filed, had possession of the claimed

invention.

Claims 1 and 13 recite, specifying a permissible defunct threshold, "wherein the

threshold is dependent upon an operator's choice of which economic value to maximize".

Applicant's specification discloses, "[t]he optimal promotional level determined by the

system is intended to optimize an economic variable, such as customer retention or profit". The

specification discloses the objective function may weigh multiple criterions, for example the *user*

may be trying to optimize both the profit and market share; the objective function may be defined

to be 75% weighted toward profit optimization and 25% toward customer retention. (See page

15). On page 16, the specification teaches that to determine the likelihood that a customer will

not return to a website based on the length of time since that customer last accessed or transacted

with the site, the present invention may perform a statistical analysis of past customer access

frequency and likelihood of retaining those customers based on that access frequency. Based on

historical data, the probability that a customer becomes defection conditional on lapsed time

since last interaction can be calculated by determining the percentage of customers that return to

the site after having no interaction with the site for a selected time period. On page 17, the

specification teaches, at 410 the operator of the present invention determines whether he is

interested in maximizing customer retention or maximizing profit by providing customers who

are likely to become defunct with an incentive, such as a promotion, to return to interact with the

site. The specification further teaches that *the operator specifies a permissible defunct threshold*

over which the loss of customers is unacceptably high; the operator may define defunct threshold

by segment where necessary, for example the acceptable defunct threshold for customers

purchasing more than $1000 from the site in the past may be lower then the acceptable defunct

threshold for customers purchasing more than $50.

As best understood by the examiner the operator selects the **defunct threshold based on**

the customer purchase amount not on the choice of which economic value to optimize. The

promotional level is determined to optimize the profit or retention. According to the claim the

promotion is to optimize the customer retention by defining a defunct threshold. Applicant

specification does not teach the threshold is specified based on which economic value to

maximize. According to applicant specification the economic variable, is customer retention or

profit, financial such as profit or revenue, market share, customer satisfaction customer retention

or utilization of manufacturing or shipping resource. The specification also teaches the

optimization typically determine the promotion at which an economic variable is maximized, not

the threshold. According to applicant's disclosure the threshold is selected or set to for customer

retention (see page 15, 16).

Claim 14 recites "further comprises sampling data to obtain information about current

market condition". Applicant provides support for this limitation page 19 at [091]. This section

of the specification teaches experimentation utilizing the dynamic sampling engine may be

repeated periodically to ensure that the <u>optimal promotion is dynamically optimized to regularly</u>

<u>compensate for market changes</u>. However dynamically optimizing the promotion to compensate

for market change does not equate to the sampling data is performed to obtain information about

current market condition. The specification does not teach the step of specifying a range of offers

or the real time learning or dynamic analyses of promotional experimentation comprises of

sampling data to obtain information about the market conditions. Nowhere in the specification is

discloses a step of obtaining information about the market conditions. Therefore, this feature is

considered new matter.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness

rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Herz et al.

U.S. Application No. US 2001/0014868, in view of Dahm et al. U.S. Patent No. 6,301,471.

Regarding claims 1, 9-11 and 13, Herz teaches monitoring web-surfer behavior and

predicting future surfer behavior and determining a range of offers and providing a promotion to

the customer based on the customer behavior (see abstract, par. [0004] to [0011], [0023] to

[0046]. *Herz teaches wherein the offers include optimal advertisements determined from real*

time learning from dynamic analyzes of promotional experimentation (see [003]). Herz teaches

providing offers based on user profile attributes including elapsed time period since the last

purchase (period of time since the last interaction with the web site), elapsed time period

between purchases, etc., storing the data in a database (see [0246]). Herz does not explicitly

teach specifying a permissible defunct threshold; determining a probability that a customer will

become a defunct after a predetermined period of time has occurred, it is taught in Dahm. Dahm

teaches monitoring subscribers behavior. A churn likelihood being predicted based on the

subscriber behavior information, such as usage behavior and providing an offer the customer for

the purpose of retaining the customer (see col. 11 line 55 to col. 12 line 32, col. 13 lines 12-26

and col. 15 lines 25-49). Dahm also teaches different threshold values. Dahm teaches the

susceptible subscriber is typically identified by comparing stored customer profile information

with a group of predetermined threshold values associated with the profile information. Based

on the comparison a churn susceptibility index is generated. A subscriber having profile

information (churn susceptibility indexes), which exceeds the threshold values, is identified as

being susceptible to churning, the churn likelihood indicator for each subscriber is compared

against a threshold value and when the churn likelihood indicator for a particular subscriber

exceeds the threshold value, then it is determined that that particular subscriber has a high

susceptibility to churning. Hence, for those of the subscribers that are determined to have a high

susceptibility to churning, predetermined messages are sent to such subscribers. The objective of

the messages that are sent to the subscribers is to reduce the likelihood that the subscribers will,

in fact, churn in the near future to some other carrier. Additionally, when the churn likelihood

indicator is determined not to exceed the threshold value the churn reduction processing 500 has

determined that such subscribers do not have a high susceptibility to churning and, thus, block

510 is skipped for such subscribers so that the messages to reduce their churn likelihood are not

send (see col. 8 line 55 to col. 9 line 4, col. 12 lines 1-32). It would have been obvious to one of

ordinary skill in the art at the time of applicant's invention was made to implement Dahm's

defunct threshold in Herz's customized price and promotion system. One would be motivated to

set up a threshold value as taught in Dahm in order to predict a customer who is most likely to

churn or discontinue the service, and to provide a proper offer to retain such customers. It would

be obvious to use Herz's profile attributes, such as the last interaction of the customer with the

web site, and set a threshold value to determine the probability the customer would become a

defunct.

Regarding claims 2-5 Herz teaches sampling of customers and segmenting the sample

population based on a characteristic of the customers sampled; wherein characteristic is amount

spent on a web site, interaction with a web site or purchase made at a web site (see [0205] to

[0235]).

Regarding claims 6-8 and 12, Herz teaches selection of the promotion is based on

predetermined criteria, such as profit, by optimizing an amount of discount offered in the

promotion; optimizing performed continuously; wherein the optimization includes sampling

responses received from customers to the offer ... the promotion amount provided to other

customers based on the promotion discovered in the sample (see [0236] to [0246]).

Regarding claims 14 and 17, Herz teaches sampling data to obtain information about

current market condition. Applicant discloses at [0014] "(t)he Internet is a dynamic marketplace.

As e-commerce becomes a dominant force, the ability to dynamically adjust to and exploit

changes in the Internet marketplace becomes critical. An enormous amount of detailed,

disaggregate information is being routinely captured during Internet transactions. The ability to

gather real-time information on transactions conducted on the Internet means that Internet

merchants could use the information to dynamically update their websites to take advantage of

market conditions. In particular, the availability of real-time transaction information opens up

the possibility of dynamic pricing and marketing. And at [0018] "(s)ome efforts have been made

to use computer systems to estimate supply and demand, to adjust prices to perceived market

conditions, or to vary prices based on the identity and purchasing history of the customer".

Therefore, since in Herz there is the ability to gather real-time information on transaction

conducted on the Internet the information is used is used to take advantage of the market

conditions.

Regarding claims 15 and 18 Herz teaches wherein the step of providing a promotion

selected from the set of promotions comprises proactively offering promotions to

customers via email messages (see [0290].

Regarding claims 16 and 19 Herz/Dahm teaches wherein the step of specifying a

permissible defunct threshold comprises selecting a defunct threshold. "So as to minimize the

cost of customer retention" is intended use only and there is no additional step performed to

patentable differentiate the claimed invention from the prior art.

Response to Arguments

Applicant's arguments filed December 21, 2006 have been fully considered but they are

not persuasive.

Regarding the rejection of "112" applicant argues that "wherein the threshold is

dependent upon an operator's choice of which economic value to maximize" is clearly described

in the specification. Applicants' direct the Examiner's attention to the instant specification at

[0082] wherein "the merchant may decide that when the likelihood of a customer not returning to

interact with the site exceeds [the threshold chosen], the merchant will take steps to retain that

customer rather than permit the customer to become defunct." Applicant then asserts "Of course,

the merchant may not choose to set the threshold at that level because an economic value to be

maximized dictates that the customer be given more or less time to interact with the site before

declaring the customer to be defunct, *Id* at [0080]. The specification makes it clear that

"managers of the firm may explicitly state a time interval by which if a customer had failed to

interact with the site, the customer is deemed to be defunct, *Id.* This gives the merchant added

flexibility wherein more promotions (i.e. offered at lower threshold values) can be offered to,

e.g. improve short term profits. The merchant could likewise set a higher threshold value (i.e.

give the customer more time to interact with the site before becoming defunct) in order to

minimize customer retention costs". The issue is not whether the claimed feature would be

obvious rather it is whether the claim contains subject matter which was not described in the

specification in such a way as to reasonably convey to one skilled in the relevant art that the

inventor(s), at the time the application was filed, had possession of the claimed invention.

According to applicant specification the economic variable, is customer retention or

profit, financial such as profit or revenue, market share, customer satisfaction customer retention

or utilization of manufacturing or shipping resource. The specification also teaches the

optimization typically determine the <u>promotion</u> at which an economic variable is maximized, not

the threshold. According to applicant's disclosure the threshold is selected or set to for customer

retention (see page 15, 16).

Regarding applicant argument that the combined cited references does not provide both

the motivation to combine the references and expectation of success, Examiner already

addressed the argument in the final rejection. In response to applicant's argument that there is no

suggestion to combine the references, the examiner recognizes that obviousness can only be

established by combining or modifying the teachings of the prior art to produce the claimed

invention where there is some teaching, suggestion, or motivation to do so found either in the

references themselves or in the knowledge generally available to one of ordinary skill in the art.

See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347,

21 USPQ2d 1941 (Fed. Cir. 1992).

Applicant argues that Herz does not teach or suggest that the promotions offered to the

consumer by Herz are based on real-time learning from a promotional experimentation of

various promotions offered to various *other* consumers. Applicant asserts that the instant claimed

invention does not solely focus on segmenting customers into types based on their prior

behavior, but rather additionally contemplates carrying out real-time experimentation to

determine which promotional offers are the most likely to succeed by specifically taking into account the current market conditions. Examiner would like to point out to applicant that the claim recite "specifying a range of offers to be included in a set of promotions wherein the offers include optimal advertisements determined from real-time learning from dynamic analyses of promotional experimentation" and does not indicate that the real-time learning is from a promotional experimentation of the various promotions offered to various *other consumers*.

However as indicated in the final rejection Herz teaches an expert system that recommend a particular set of upgrades to a computer system, perhaps both by asking questions of management and by consulting system logs that document the demands placed on the existing system and the consequent performance. <u>If the expert system constructs several or many versions of a parameterized offer, say at different prices, then similarity-based techniques may again be used to predict how receptive the shopper will be to each of these constructed offers</u> **(rang of offers to be included in a set of promotions based on analyses of promotional experimentation).** Although a vendor's initial sales pitch might specify only the best of the insurance policy or cosmetic makeover offers, or perhaps the best few offers (especially when none of the offers is clearly best), the vendor will typically be willing to make alternative versions of the offer available to the shopper. Thus, if the vendor's initial offer does not perfectly guess the shopper's preferred insurance deductible or shade of lipstick, the shopper might ask the vendor to suggest additional versions of the offer, possibly specifying certain desired parameters (e.g., that the insurance deductible should fall in a certain range). <u>Recall that we can characterize a user not only by the responsiveness of the user to certain offers but also by many other attributes, including the loyalty and consistency factor. Example of such user profile attributes</u>

(largely numeric) include: elapsed time period since the last purchase, elapsed time period

between purchases (average), ranges elapsed period to previous offers, total amount spent over

the past 6 months, maximum volume spent on a single shopping spree. If a customer

(particularly a long term customer) has recently been lost the system may find it advantageous to

use the most aggressive promotional offers possible in order to reinitiate lost loyalties.

Conversely, somewhat less aggressive discounting may be appropriate for very loyal customers

(such as frequent buyer programs, long term customer rewards etc.). By the system these types

of incentive based promotions are geared towards instilling customer interest and loyalty.

Therefore Herz teaches optimal advertisements determined from real-time learning from

dynamic analyses of promotional experimentation".

Herz does not teach a threshold that indicates that there is a probability that the consumer

could be lost, before it is considered lost. According to applicant's invention a web merchant for

example considers a consumer lost (defunct) if a consumer's last interaction is six month or

more. A threshold value is then selected or specified, i.e., between zero and six month, (for

example 3 month). Examiner would like to point out that in Herz, the system keeps track of the

elapsed time period of the consumer's interaction with the site and provides incentive based on

the record (aggressive or less aggressive based on the frequency of interaction). Applicant's

invention on the other hand provides promotional offer to the consumer only if the probability of

consumer being lost is high.

Dahm teaches a subscriber having profile information (churn susceptibility indexes),

which exceeds the threshold values, is identified as being susceptible to churning, the churn

likelihood indicator for each subscriber is compared against a threshold value and when the

churn likelihood indicator for a particular subscriber exceeds the threshold value, then it is
determined that that particular subscriber has a high susceptibility to churning. <u>Hence, for those
of the subscribers that are determined to have a high susceptibility to churning, predetermined
messages are sent to such subscribers. The objective of the messages that are sent to the
subscribers is to reduce the likelihood that the subscribers will, in fact, churn in the near future to
some other carrier. Additionally, when the churn likelihood indicator is determined not to
exceed the threshold value the churn reduction processing 500 has determined that such
subscribers do not have a high susceptibility to churning and, thus, block 510 is skipped for such
subscribers so that the messages to reduce their churn likelihood are not send</u> (see col. 8 line 55
to col. 9 line 4, col. 12 lines 1-32), same as applicant's invention.

Even though the method and system of providing subscriber's loyalty and retention
techniques of Dahm is used in customers of mobile devices, Dahm teaches specifying a threshold
value based on customer profile and determining a probability that the customer would be
defunct (churn). Dahm's method provides the advantage of identifying customer before they are
lost as customers and avoids Herz's aggressive promotional offers possible in order to reinitiate
lost loyalties. Dahm solves the problem of losing customer not only by understanding the cause
of losing (churning) customers but also by understanding which particular customer are most
likely to churn (defunct) (see col. 1 lines 43-53).

In particular, the Supreme Court emphasized that "the principles laid down in *Graham*
reaffirmed the 'functional approach' of *Hotehkiss, 11* How. 248." *KSR,* 127 S. Ct. at 1739, 82
USPQ2d at 1395 (citing *Graham v. John Deere Co.,* 383 U.S. 1, 12, 148 USPQ 459, 464 (1966)
(emphasis added)), and reaffirmed principles based on its precedent that "[t]he combination of
familiar elements according to known methods is likely to be obvious when it does no more than
yield predictable results." *Id.* The Court explained:

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability. For the same reason, if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.

Id. at 1740, 82 USPQ2d at 1396. The operative question in this "functional approach" is thus "whether the improvement is more than the predictable use of prior art elements according to their established functions." *Id.*

The Supreme Court made clear that "[f]ollowing these principles may be more difficult in other cases than it is here because the claimed subject matter may involve more than the simple substitution of one known element for another or the mere application of a known technique to a piece of prior art ready for the improvement." *Id.* The Court explained, "[o]ften, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue." *Id.* at 1740-41, 82 USPQ2d at 1396. The Court noted that "[t]o facilitate review, this analysis should be made explicit. *Id.* (citing *In re Kahn,* 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)) ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness"). However, "the analysis need not seek out precise teachings directed to the specific subject matter of the challenged claim, for a court can take account of the inferences and creative steps that a person of ordinary skill in the art would employ." *Id.* at 1741, 82 USPQ2d at 1396.

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller,* 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Cannon (US 6286005 B1) teaches analyzing data and advertising optimization.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yehdega Retta whose telephone number is (571) 272-6723. The examiner can normally be reached on 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Stamber can be reached on (571) 272-6724. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Yehdega Retta
Primary Examiner
Art Unit 3622

YR.